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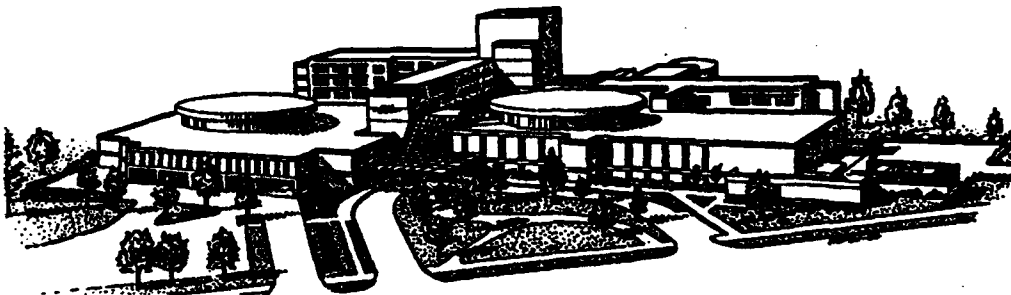
DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

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1b. RESTRICTIVE MARKINGS N/A		DTIC ELECTE MAR 05 1993 S E	
3. DISTRIBUTION/AVAILABILITY OF REPORT UNCLASSIFIED/UNLIMITED			
2a. SECURITY CLASSIFICATION AUTHORITY N/A		5. MONITORING ORGANIZATION REPORT NUMBER(S)	
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE N/A		7a. NAME OF MONITORING ORGANIZATION U.S. ARMY-BAYLOR UNIVERSITY GRADUATE Program in HEALTH CARE ADMIN.	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)		7b. ADDRESS (City, State, and ZIP Code) AHS San Antonio, Texas 78234-6100	
6a. NAME OF PERFORMING ORGANIZATION USAF Medical Center Wright-Patterson	6b. OFFICE SYMBOL (if applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION		10. SOURCE OF FUNDING NUMBERS	
8b. ADDRESS (City, State, and ZIP Code)		PROGRAM ELEMENT NO.	PROJECT NO.
		TASK NO.	WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification) Market Analysis for Expansion of Surgical Services at USAF Medical Center Wright-Patterson			
12. PERSONAL AUTHOR(S) Lewis, Danial Paul			
13a. TYPE OF REPORT Final	13b. TIME COVERED FROM 1990 TO 1991	14. DATE OF REPORT (Year, Month, Day) 1991, April, 22	15. PAGE COUNT 34
16. SUPPLEMENTARY NOTATION			
17. COSATI CODES		18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)	
FIELD	GROUP	SUB-GROUP	
		Market Research (Health care) Surgical Service area analysis	
19. ABSTRACT (Continue on reverse if necessary and identify by block number) This graduate management project conducts market research for use in planning expansion of surgical services at a large Air Force Medical Center. The author conducted an analysis of the local and regional service area to include geographic and demographic market size and projected utilization based on known population and incidence rates.			
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT <input type="checkbox"/> UNCLASSIFIED/UNLIMITED <input type="checkbox"/> SAME AS RPT. <input type="checkbox"/> DTIC USERS		21. ABSTRACT SECURITY CLASSIFICATION	
22a. NAME OF RESPONSIBLE INDIVIDUAL Danial P. Lewis, Capt, USAF, MSC		22b. TELEPHONE (include Area Code) (513) 257-5946	22c. OFFICE SYMBOL SGA-1

**MARKET ANALYSIS FOR EXPANSION OF
SURGICAL SERVICES AT
USAF MEDICAL CENTER WRIGHT-PATTERSON**



A Graduate Management Project
Submitted to the Faculty of
Baylor University
In Partial Fulfillment of the
Requirements for the Degree
of
Master of Health Administration
by

Captain Darial P. Lewis, MSC, USAF

April, 1991

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Unannounced <input type="checkbox"/>	
Justification _____	
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Distribution / _____	
Availability Codes	
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ACKNOWLEDGEMENTS

Thanks to Peggy, Kyle and Kristin for their love, support and patience over these most difficult two years. I would also like to thank my preceptor, Colonel Cunningham and our Associate Administrator, Lieutenant Colonel Murray for their wisdom and for giving me access to one of the best medical facilities in the Air Force. And finally, thanks to my readers, the Baylor MHA faculty and my fellow students for an experience I will not likely forget.

ABSTRACT

This graduate management project conducts market research for use in planning expansion of surgical services at a large Air Force Medical Center. The author conducted an analysis of the local and regional service area to include geographic and demographic market size and projected utilization based on known population and incidence rates. The concept of market share was introduced to assist in providing baseline measures. Strategic implications of the the market were discussed. The results of the study indicated a need for careful planning of additional services based upon the strategic objectives, projected needs of the known population and graduate medical education training requirements. This study identified a potential for limited expansion of selected surgical services within the local market. Greater opportunities for expansion of selected surgical services were noted in the regional market. Study recommendations include the development of specific strategic goals related to the Department of Surgery, development of strategic business units (Kropf & Greenberg 1984) within the Department of Surgery and further research of specific surgery target markets. Additional recommendations include development of a marketing information system to provide continuous market intelligence for use in the strategic planning process.

I. INTRODUCTION

1.1 Conditions Which Prompted the Study.

Wright-Patterson USAF Medical Center (WMPC) is the second largest medical center in the Air Force and is one of six stateside Air Force Medical Centers. It has two primary missions involving the delivery of peacetime healthcare. The first is to provide for the community health needs of the local base and surrounding area and the second is to serve as a primary tertiary referral center for DoD Healthcare Region VI. DoD Healthcare Region VI consists of Air Force, Army and Navy installations located in Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Ohio, West Virginia, and Wisconsin.

In September of 1982, a \$123.3 million dollar construction project was initiated to upgrade and expand the facility. This project was originally designed to increase inpatient capacity up to 500 beds. During the course of the project, the project ran into funding problems and was scaled back to support a 301 bed facility. By this time, most of the inpatient areas, including expansion of the operating rooms from five to twelve, had already been completed. The downsizing affected primarily the outpatient and administrative areas. The project was completed in late 1989 and has more than doubled the square footage of the facility, providing normal inpatient capacity up to 301 beds and outpatient areas which serve over 500,000 patient visits annually. Due to staffing restraints, HQ/USAF Surgeons Office has established the current bed capacity at 245.

The lengthy construction and renovation activities are widely believed to have combined with other factors such as reduced staffing in physician and support services to adversely affect patient access both at the local and referral level. In April of 1988, operating bed capacity reached a low of 180 beds and many of the main access components had been severely restricted. At one point, the facility maintained a list of over 800 people waiting for primary care appointments.

Management maintains that lack of access through primary care and the specialty referral clinics, forced many patients to use other military treatment facilities or the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) and substantially altered traditional referral patterns from DoD Region VI providers. This view is supported by historical data which reflects substantial increases in local CHAMPUS expenditures during the 1983 to 1988 time frame. During this period, local CHAMPUS expenditures increased from approximately \$1.8 million to over \$8.9 million a year. Decreases in direct care workload and increases in supplemental and alternative care program expenditures were also noted.

Since the completion of the construction, management has focused on addressing the access problem and reducing local CHAMPUS expenditures. An innovative managed care infrastructure was developed to implement and manage a total managed healthcare strategy for this facility. Of key importance has been the replacement of physician and support staffing through a combination of Partnership, VA/DoD Sharing

Agreements, contract, and congressional efficiency initiatives to increase local and referral access for outpatient appointments.

Of significance to this study were three Alternative Use of CHAMPUS funds proposals aimed at increasing in-house surgical capability. Prior to these initiatives, surgical workload could support up to five operating rooms on any given day. The first proposal sought funding to hire staff, purchase supplies and equipment to support general surgeries on CHAMPUS eligible patients. It entailed the opening of two more rooms with an estimated 105 additional surgeries per month. A supplemental proposal addressed the additional nursing and bed requirements created as a result of the increased surgical workload. The third surgical proposal initiated a cardiac surgery program allowing capability for angioplasties, cardiac by-passes, and pediatric procedures on CHAMPUS eligible patients.

These proposals were approved and executive management received about \$1 million dollars seed money to support expansion efforts. Additional support personnel were hired using a combination of contract, Partnership and Veterans Administration Sharing arrangements. To date, these initiatives have enabled the facility to recapture significant amounts of CHAMPUS surgical workload and have expanded utilization of the operating room plant capacity up to seven rooms a day.

In keeping with the local mandate for continuous improvement, management has directed review of market research data to see if further expansion is warranted.

1.2 Statement of the Management Problem.

The current level of surgical workload does not make full use of the physical plant capacity of Wright-Patterson Medical Center's operating rooms. An opportunity may exist to recapture additional CHAMPUS surgical workload. Insufficient market intelligence data has been collected to support further expansion of surgical services contemplated by management.

1.3 Review of the Literature.

The literature supports the application of market research and/or service area analysis for hospitals as part of the strategic planning process or during consideration of new product or service development. Pegel and Rogers (1988), view market, service segment and service area analysis as an integral part of the strategic planning process. This analysis may be done as part of the external environmental assessment or used independently as a strategic management tool. There appears to be wide consensus in the literature that the market driven organization must have full knowledge of its service area in order to determine what its customers needs are and what the service areas potential, threats and opportunities might be during the course of the planning horizon. This requires the integration of adequate market information and a strategic orientation. Saper and Mazzoni (1987) identified five characteristics of market oriented health care facilities: " (1) a customer service philosophy,

(2) an ingrained marketing organization, (3) adequate market information, (4) a strategic orientation and (5) operational efficiency".

Keckley (1988) describes market research as " the systematic process of gathering, analyzing, and interpreting information relevant to the success or failure of a product or service ". He goes on to explain that it is really much more than that, most importantly, it is knowing what your market wants and needs and how to best meet those needs. Kropf and Greenberg (1984) distinguish between market information which is routinely collected data for market definition and market research which in their view is original and systematized using sampling survey design and formal analytical techniques. Their focus is on using available data to analyze the overall market, make a determination of market share, and thoroughly evaluating the competitiveness of each of the service segment niches. They advocate the development of a relational map for each business unit which addresses factors such as business strength, industry attractiveness, market share, and market segment growth rate.

There are many approaches for gathering information relevant to your market. Nickels (1978) provides a useful distinction between marketing intelligence and market research. He defines market research as "... a periodic, structured process of gathering information relative to a particular marketing problem..". Nickels also discusses the concept of marketing intelligence, which refers to a continuous process of actively monitoring relevant external and internal data to provide input into all

marketing decisions. Nickels concluded that market research is really the formalized process of gathering market intelligence.

The concept of a continuous process of monitoring the external environment points to the need for a marketing information system that can assist with the marketing intelligence gathering, information processing, analysis, storage, and distribution. Authors including Nickels (1978), Kropf and Greenberg (1984), Keckley (1988) and Malhotra (1989) provide suggestions for the development of information systems to support strategic marketing decision making. Keckley's (1988) approach to the determination of market share and market demand was selected as the primary methodology for the assessment of the WPMC surgical market. The selection was made based on its relative simplicity and lack of reliance on sophisticated in-house marketing information systems.

1.4 Purpose of Study.

The purpose of this study is to assess WPMC's surgical market in terms of potential for further expansion, and subsequent enhanced utilization of existing in-house surgical plant capacity.

II. METHODS AND PROCEDURES

2.1 Methodology.

Keckley's (1988) market research methodology was employed to determine the size of the surgical market, current market share and the potential demand for additional surgical services. The service area analysis utilized Defense Medical Information System (DIMIS) data reflecting facility and regional beneficiary demographics, and reported Medical Expense Performance Reporting System (MEPRS). Because this is primarily an assessment based on historical data and projections, strict measures of validity and/or reliability were not possible.

2.2 Measuring Geographic Market Size.

The geographic size of the market is normally defined as the geographic area where 80% of discharges originated during the last year (Keckley, 1988). Zip codes or counties are usually used to define the geographic market so market researchers can make use of available U.S. Census data to compute the demographics of a particular area. Surgical discharge data by zip code and clinical specialty code was not readily available from the in-house data collection systems. For this reason, an alternate methodology was employed in which a three month sample of each surgical clinic ambulatory visits were matched against the specialty code and zip code. Since most surgical discharges must first originate from a surgical specialty clinic consult, a close approximation of "patient

draw" could be computed. The sample consisted of three consecutive months (April, May and June 1990) of ambulatory visits consisting of more than 17,000 visits. The data was collected from the Automated Quality of Care Evaluation Support System (AQCESS) patient appointment end of month tapes and collated by clinic specialty and zip code.

2.3 Measuring Demographic Market Size.

The demographic size of the market is normally found by using U.S. Bureau of Census data for the defined geographic market. This method is not sufficient for the purposes of this analysis because we are dealing with a closed system in which not all households residing within a particular zip-code are eligible for care within our system.

The best source of demographic data for eligible beneficiaries comes from the Resource Analysis and Planning System (RAPS). This system was accessed through a modem after establishing an account with the Defense Medical Information System (DMIS). The RAPS model projects the size and composition of military health system beneficiary populations by various geographic areas. Population projections are based on counts of eligible beneficiaries enrolled in the Defense Enrollment Eligibility Reporting System (DEERS) as of 30 September 1988 and projected based on total service Program Objective Memorandum (POM) active duty endstrength projections, and service- specific growth rates of paid retirees reported by the Office of DoD Actuary adjusted for regional migration patterns computed from historical DEERS data (DIMIS Data

Explanation Report, 1990). The population projections for FY91 were obtained from the RAPS model and then stratified by local or regional market, age, sex, and beneficiary population and reported in the form of pie chart distributions.

2.4 Measuring Expected Utilization.

Projecting utilization has to do with determining how many medical procedures based on incidence rates or some other measure, that your population needs. In trying to determine how many medical procedures based on incidence rates the population being studied needs, the usual method is to multiply the population by the incidence rate to arrive at the total size of the market. Incidence rate information was derived from the 1988 National Discharge Survey and applied in this fashion to both the local and regional populations.

The RAPS model also allows for projections of utilization. This model was not chosen because it uses FY87 Services Biometrics direct care workload (standardized to FY87 MEPRS data) and FY87 CHAMPUS claims data for the base year utilization in the model. Total health care demand is projected (using the RAPS model) to future years assuming that base year inpatient and outpatient workload will increase (or decrease) in direct proportion to changes in population. The RAPS model assumes that the direct care system is operating at full capacity in the base year. Therefore, increases in total catchment area demand in future

years are assumed to be satisfied by nondirect care sources such as CHAMPUS. (DIMIS, Data Explanation Report, 1990). The reason the RAPS methodology is unacceptable is because workload in FY87 was severely restricted due to construction activities and is not reflective of operating capacity.

2.5 Market Share.

Market Share is determined by dividing the number of discharges by the size of the market. Actual CY90 MEPRS reported discharges were divided into the projected market as determined above.

2.6 Market Outlook.

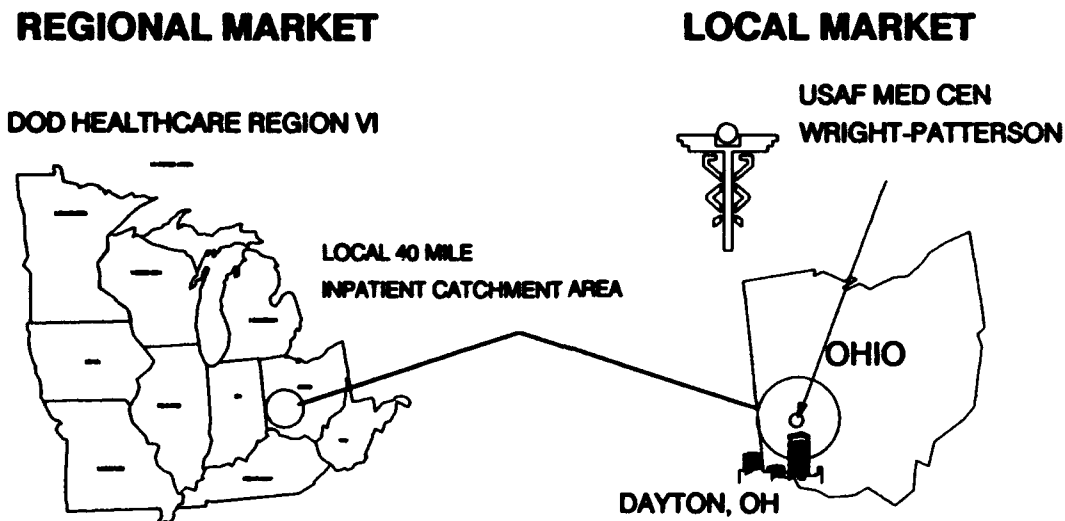
The emphasis here is to determine whether the market for surgical workload is growth, stability or decline. The rate of growth is usually based on two factors: (1) the population growth rate and (2) changing incidence rates for those services (Keckley, 1988). The RAPS population projection model was used to examine each of the DoD Region VI catchment areas to obtain indications of population shifts. Known base closure information and command consolidation information was factored in when available. Changing incidence rates for surgical services are not readily available. An analysis of changing incidence rates by sex was used to approximate any major shift in utilization.

III. RESULTS

3.1 Geographic Size.

WPMC management is accustomed to viewing their geographic and demographic markets in terms of the peacetime missions. The geographic area for the community hospital role has been defined under the guidance of the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) as a 40 mile radius around the hospital known as the inpatient catchment area. As stated earlier, WPMC is also designated as a primary tertiary referral center for DoD Region VI. Figure 1 reflects the CHAMPUS designated geographic market.

Figure 1. Geographic Market



These arbitrary geographic designations defined by CHAMPUS may or may not reflect the geographic area from which we actually draw our patients. Factors such as cost, accessibility, availability of transportation

and the degree to which patients are informed about our services can influence the size of the geographic market.

To test the validity of the CHAMPUS 40-mile inpatient catchment area designation for surgical services, a patient draw analysis consisting of a three month sample of surgical visits from each of the surgical specialty clinics was completed. The results of which are reported in Table 1.

Table 1. Patient Origin Analysis

ORIGIN OF SPECIALTY CLINIC VISIT

CLINICAL SERVICE	WITHIN 40 MILES	% OF TOTAL	OUTSIDE 40 MILES	% OF TOTAL
GENERAL SURGERY	1,778	87.16	262	12.84
CARDIOVASCULAR/THORACIC	266	69.82	115	30.18
NEUROSURGERY	150	55.56	120	44.44
OPHTHALMOLOGY	864	73.41	313	26.59
OTORHINOLARYNGOLOGY	796	76.83	240	23.17
PLASTIC SURGERY	462	76.19	110	23.81
PROCTOLOGY	927	77.77	265	22.23
UROLOGY	619	66.56	311	33.44
GYNECOLOGY	4,205	87.02	627	12.98
ORTHOPEDICS	2,598	74.14	906	25.86
PODIATRY	986	77.76	282	22.23
TOTAL	13,651	79.36	3,551	20.64

Total n size was over 17,000 visits. Data was collected from end of month

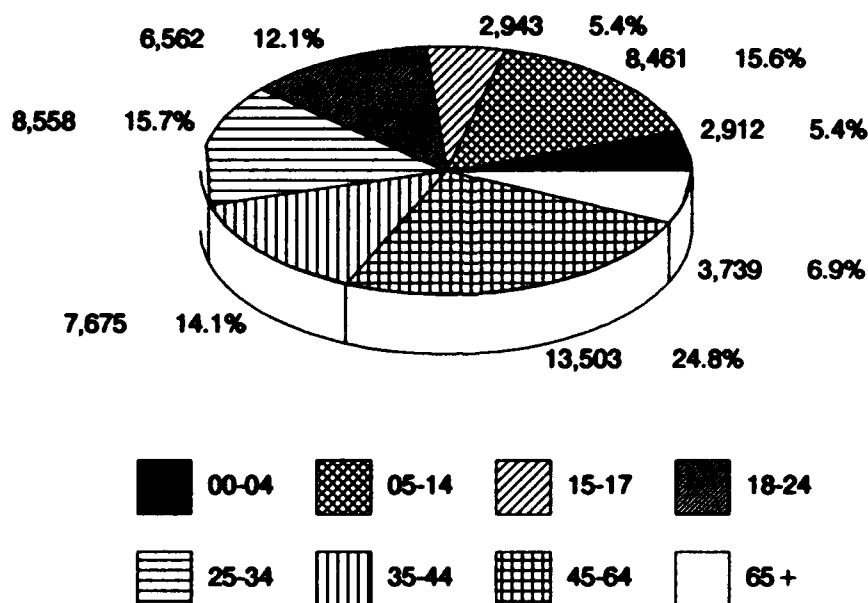
tapes generated from the AQCESS appointment system for April, May and June of 1990. Each visit was grouped according to surgical specialty and zip code and then tallied to identify the relative patient draw for each surgical clinical specialty.

Over 79% of the surgical specialty clinic visits originated within the 40 mile inpatient catchment area. The results parallel those reported by Keckly (1988) in that geographic markets do differ widely for clinical services. Neurosurgery, Cardiovascular/Thoracic Surgery and Urology draw greater than 30% of their visits from the regional market. General Surgery and Gynecology exhibit a much tighter geographic market with over 87% of their visits originating within a 40 mile radius of the facility.

3.2 Demographic Size

Local Market Demographics

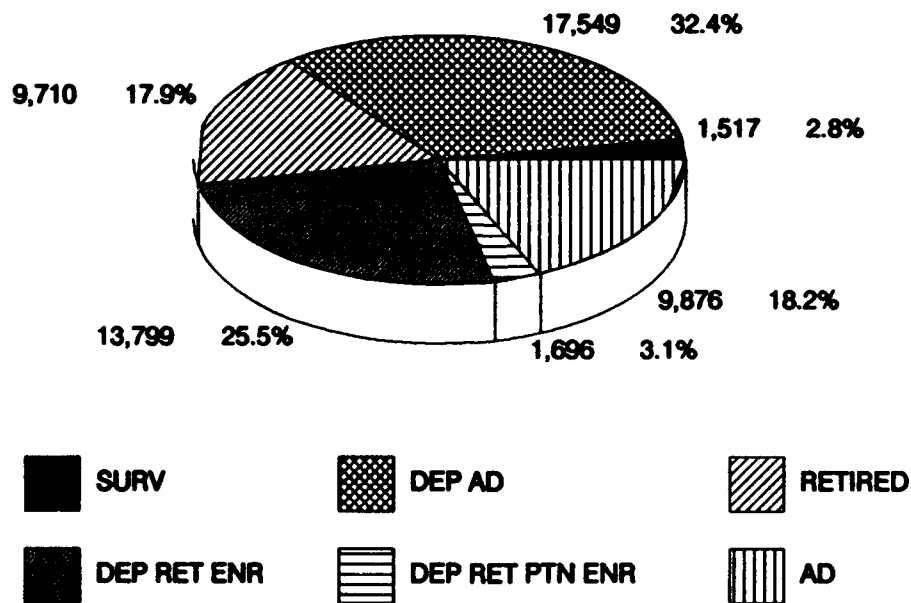
Figure 2. Age Distribution of Local 40 Mile Catchment Area



The RAPS population projection model was queried for the local inpatient catchment area as well as DoD Region VI. Figure 2 reflects the age distribution of eligible beneficiaries for the local 40-mile inpatient catchment area as projected for FY91.

Normally, it is also helpful if you are able to segment your demographic population by sex for the purposes of applying incidence rate information during computation of expected demand. In addition we are also interested in segmenting our demographic population in terms of beneficiary category (Figure 3) because we often receive resources and provide care based on these distinctions.

Figure 3. Local 40 Mile Population by Beneficiary Category



There are approximately 54,000 eligible beneficiaries residing in WPMC's 40-mile inpatient geographic catchment area. Males slightly outnumber females making up approximately 51 percent of the population. Children and adolescents (ages 0 - 15 years) comprise about 21 percent of the population. Another 47.3 percent of the local population is between the ages of 15 - 44 years old. Persons 45 - 65 year or older represent the remaining 31.7 percent. Active duty patients (the highest priority in terms of treatment and the base for which most facilities are resourced) comprise only 18.2 percent of the local population. There are almost as many retirees totaling 17.9 percent of the population. But by far, the largest beneficiary categories are the dependents of active duty and dependents of retired, representing approximately 61 percent of the total. Survivors and other special designees make up the remainder with 2.8 % of the population.

In looking at males, (see Figures 4 and 5) we see that 21 percent of males are under the age of 15 years. Another 47.7 percent are between the ages of 15 - 44 years old. Almost a third (31.3 %) of the males are 45 years or older. Dependents of retirees and active duty comprise the largest group of males with 33.1 percent. Retirees are the second largest male beneficiary category with 34.9 % of the total. Active duty males make up 31.2 %. with survivor males representing only .8 % of the total.

Females (Figures 6 and 7) have the same distribution as males (21 %) under the age of 15 years. They are slightly less represented in the ages of 15 - 44 years old (46.9%) . Again, almost a third (32.1 %) of the

Figure 4. Local Catchment Area Males by Age

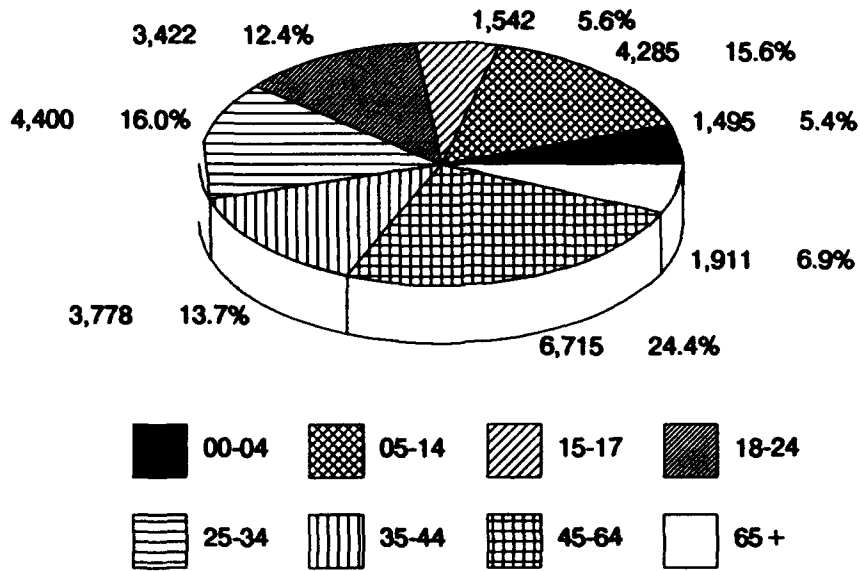


Figure 5. Local Catchment Area Males by Beneficiary Category

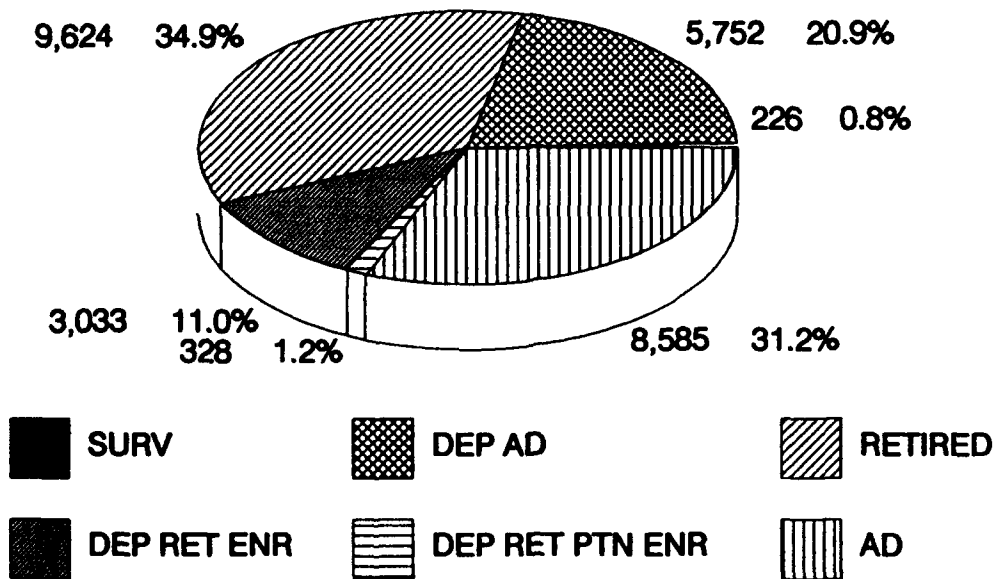


Figure 6. Local Catchment Area Females by Age

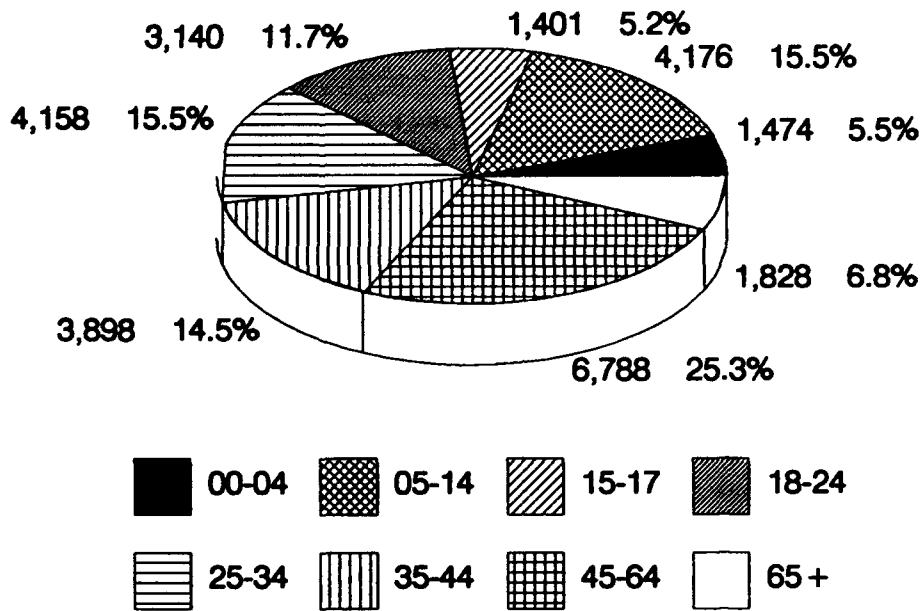
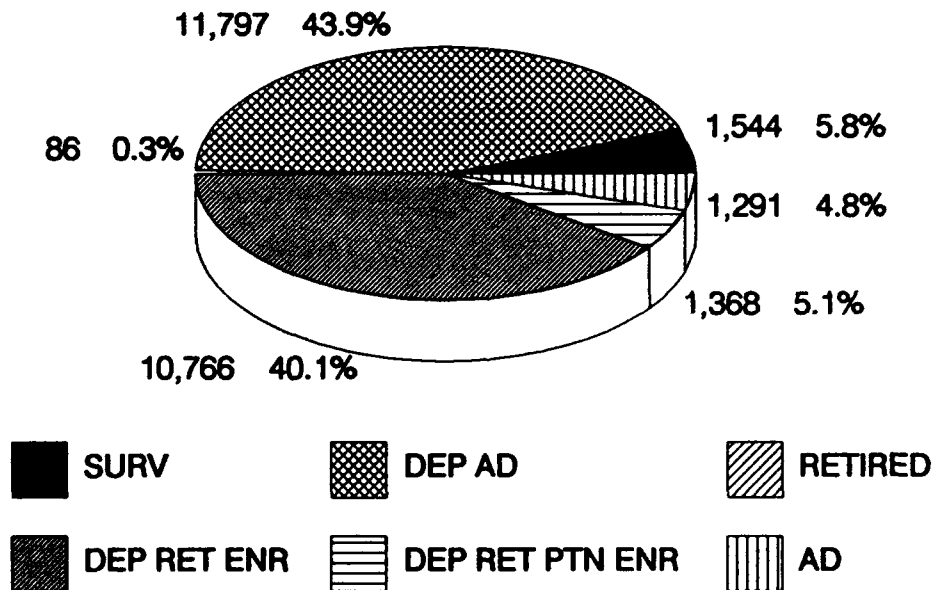


Figure 7. Local Catchment Area Females by Beneficiary Cat

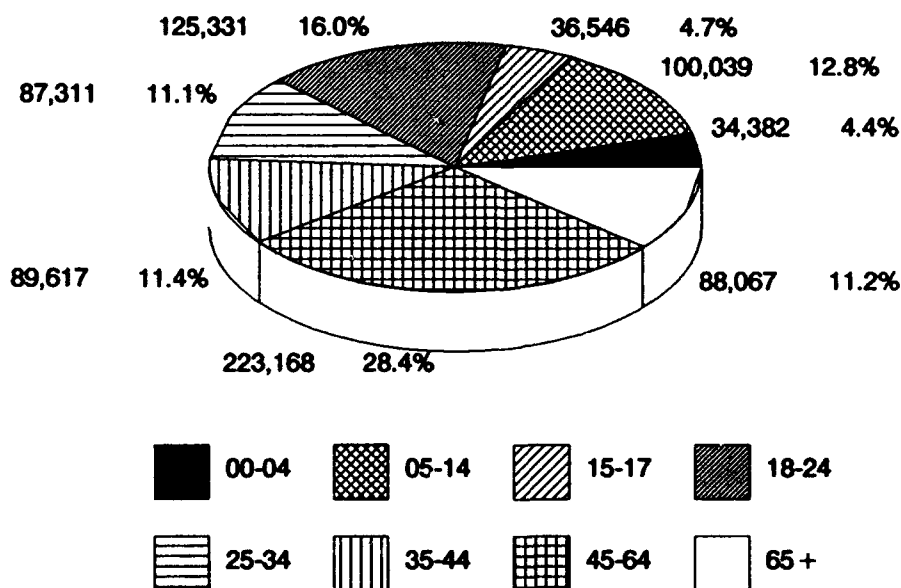


females are 45 years or older. Dependents of retirees and active duty again are the largest beneficiary group, however much more so, comprising 89.1 percent of the total. Active duty females are the second largest beneficiary category with 4.8% of the total. Female survivors outnumber female active duty members 5.8% to .3 % respectively.

Regional Market Demographics.

A regional demographic analysis is also important to the discussion of surgical workload. The RAPS FY91 projection for the DoD Region VI geographic area reported approximately 784,461 eligible beneficiaries within the ten state area. This figure includes the local market population described above. Again, males outnumber females to a greater degree, making up approximately 53 percent of the population.

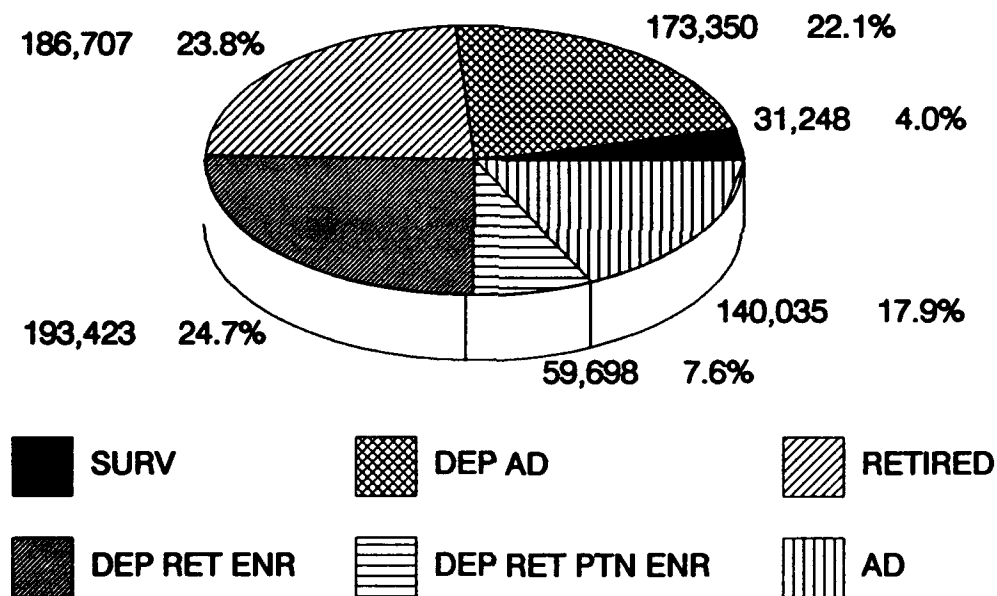
Figure 8. Age Distribution of Regional Catchment Area



Regionally, children and adolescents (ages 0- 15 years) comprise a smaller proportion of the total with about 17 percent of the population (Figure 8).. Also lower, is the representation of persons between the ages of 15 - 44 years old (43.2%). The proportion of those between the ages 45-65 years or older grew from 31.7 percent in the local catchment area to 39.6 % in the regional sample.

In a breakdown by regional beneficiary category (Figure 9) active duty

Figure 9. Regional Population by Beneficiary Category

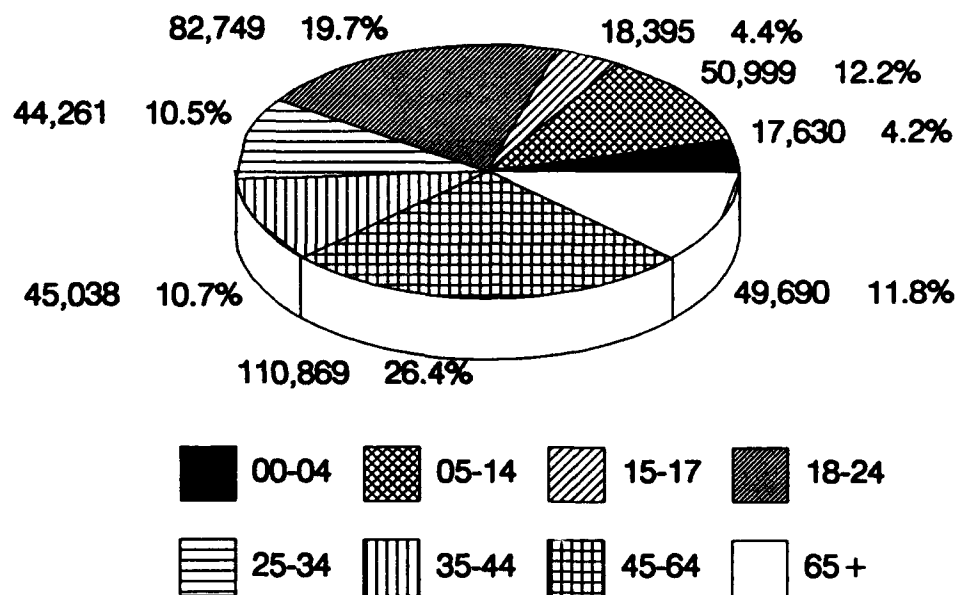


patients comprise even less of the regional total with 17.9%. There are more retirees than active duty members totaling 23.8 percent of the population. Again, the largest beneficiary categories are the dependents of active duty and dependents of retired, representing approximately 54.4

percent of the total. Survivors have more representation in the regional sample with 4.0% of the population.

In the regional age distribution for males, (Figure 10) we see that a smaller percent of males (16.4%) are under the age of 15 years. Also smaller (45.3%) is the distribution between the ages of 15 - 44 years old.

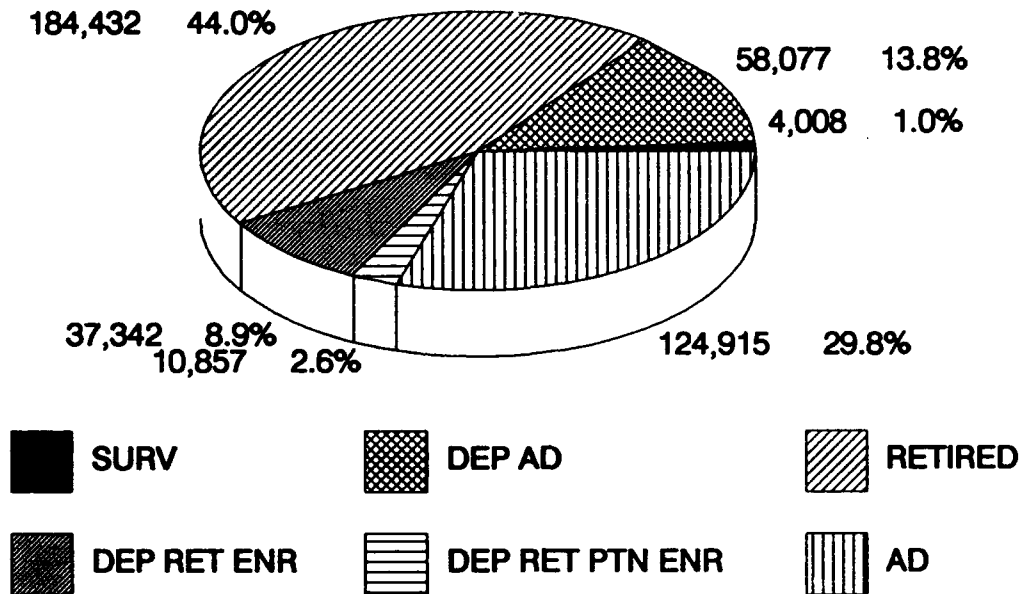
Figure 10. Regional Catchment Area Males by Age



The increase comes in the males who are 45 years or older going from 31.3 % in the local population to 38.2% in the regional sample.

Retirees (Figure 11) displace dependents of retirees and dependent of active duty as the largest group of males with 44 percent. Active duty males also are more represented in the regional sample comprising

Figure 11. Regional Catchment Area Males by Beneficiary Cat



29.8% of the total. Dependent of retirees and dependents of active duty members drop to only 25.3 % of the regional sample. Survivor males remain the smallest male beneficiary category with 1.% of the total.

Females have a slightly higher distribution than males (18 %) under the age of 15 years regionally but still less than the 21% reported for the local catchment area (Figure 12). They are again, slightly less represented in the ages of 15 - 44 years old (40.7%). For the 45 and older age group we see a 10% increase over the males with 41.3% and a higher overall proportion than the local sample of 32.1 %.

Unlike the males, female retirees represent only .6% of the total (Figure 13). Dependents of retirees and dependents active duty again are the

Figure 12. Regional Catchment Area Females by Age

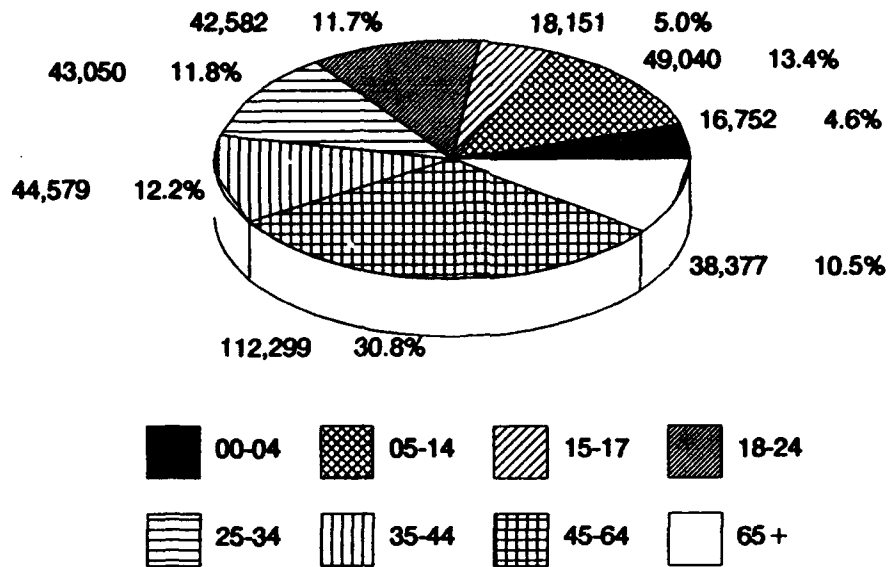
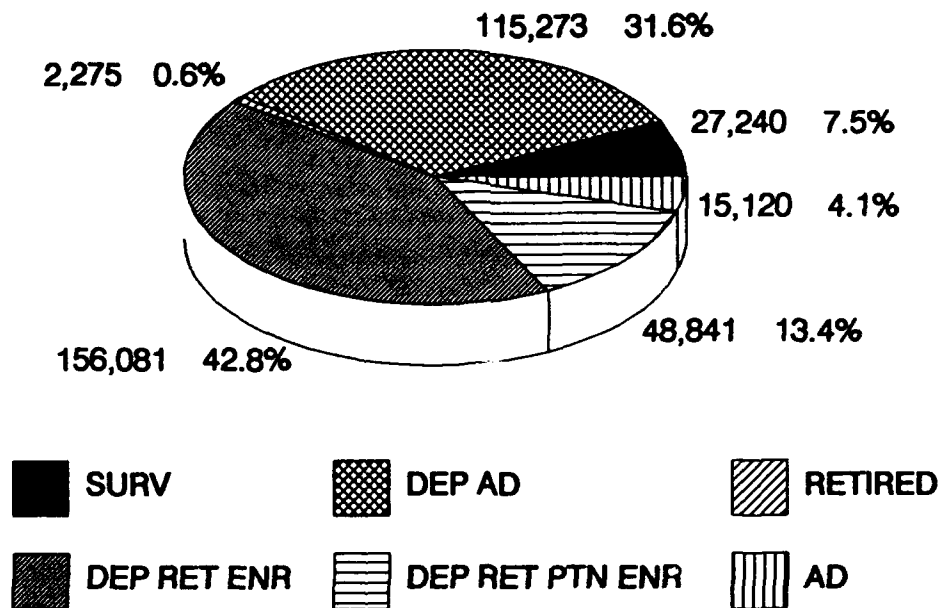


Figure 13. Regional Catchment Area Females/Beneficiary Cat



largest beneficiary group, comprising 87.8 percent of the total. Survivors are the second largest beneficiary category with 7.5% of the total. Active duty females comprise only 4.1% of the total.

3.3 Projected Utilization.

In trying to determine how many medical procedures based on incident rates that population needs, the usual method is to multiply the population by the incidence rate to arrive at the total size of the market. Figures 14 and 15 reflect the major surgical clinical specialties projected discharges based on the populations reported above and the incident rates as reported in the 1988 National Discharge Survey.

Figure 14. Projected Utilization for Local 40 Mile Area

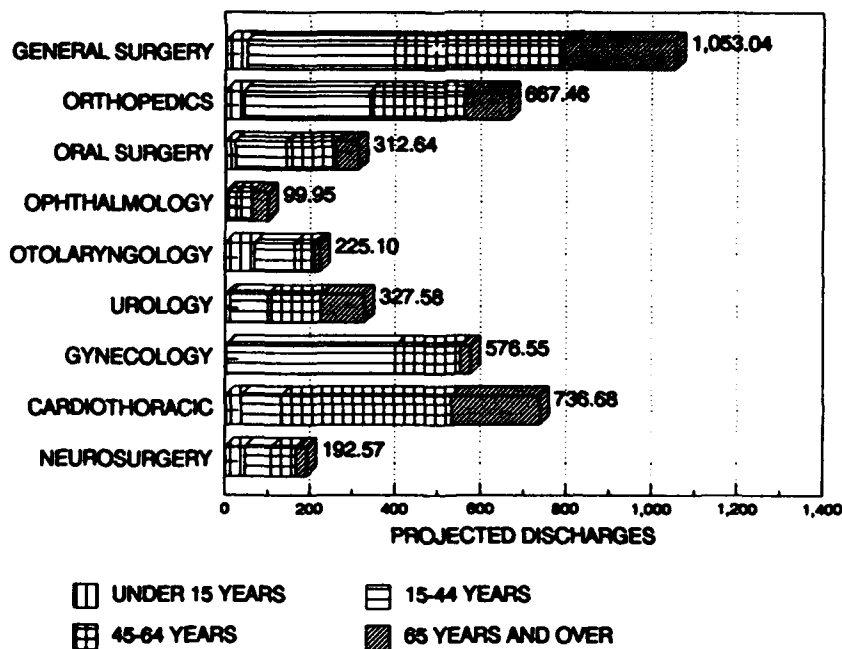
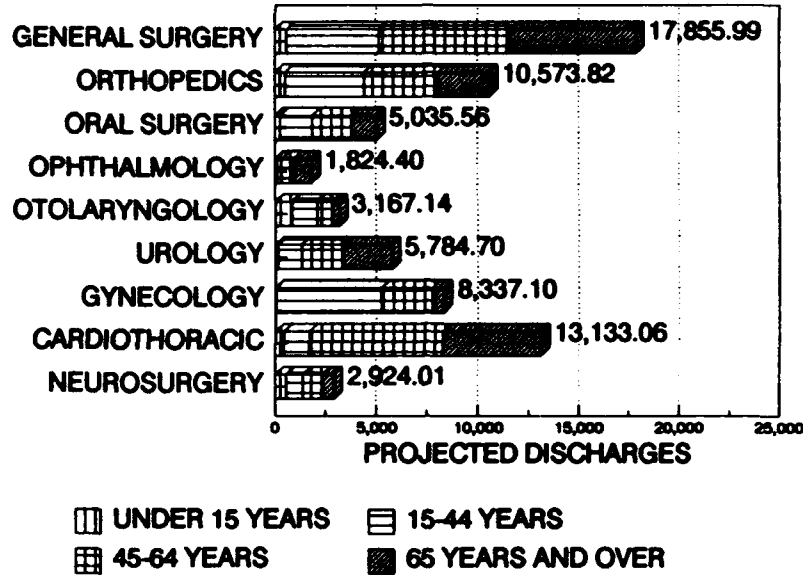


Figure 15. Projected Utilization for Regional Area



3.4 Market Share.

As defined previously, market share is a percentage of total current market demand. Figure 16 summarizes the result of geographic, demographic, and incidence data used to calculate market share for selected surgical services.

3.5 Market Outlook.

In addition to market share, it is also important to know if the outlook for surgical workload is growth, stability, or decline. The rate of growth is usually based on two factors: (1) the population growth rate and (2) changing incidence rates for those services. There are no major

Figure 16. WPMC Market Share for Selected Surgical Service

CLINICAL SPECIALTY	CY90 DISCH	TOTAL LOCAL MARKET	WPMC MARKET SHARE	TOTAL REGIONAL MARKET	WPMC MARKET SHARE
GENERAL SURGERY	1195	1053.04	113.48%	17855.99	6.60%
ORTHOPEDICS	724	667.46	108.47%	10573.82	6.85%
ORAL SURGERY	143	312.64	45.73%	5035.56	2.84%
OPHTHALMOLOGY	149	99.95	149.07%	1824.40	8.17%
OTOLARYNGOLOGY	465	225.10	206.57%	3167.14	14.66%
UROLOGY	249	327.58	76.01%	5784.70	4.3%
GYNECOLOGY	617	576.55	107.01%	8337.10	7.4%
CARDIOTHORACIC	174	736.68	23.62%	13133.06	1.3%
NEUROSURGERY	172	192.57	89.32%	2924.01	5.9%

population shifts evident in the RAPS population projection model for the local or regional markets.

Changes in surgical incidence rates by clinical specialty are difficult to project. Data from the Division of Health Care Statistics, National Center for Health Statistics (Public Health Service, 1989) suggests that for males of all ages, incidence rates have been declining slightly (Figure 17) . The one exeption is for males over 65 which have risen slightly over the last three years.

The same pattern was true for females. The Public Health Service reported that overall incidence rates for females are also declining with the exception of increasing incidence rates for those over the age of 65 (Figure 18).

Figure 17. Males - Operations Per 1,000 Population

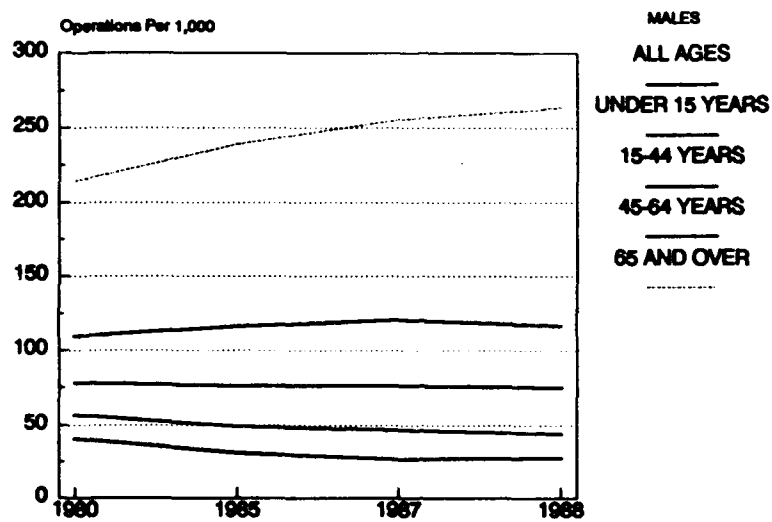
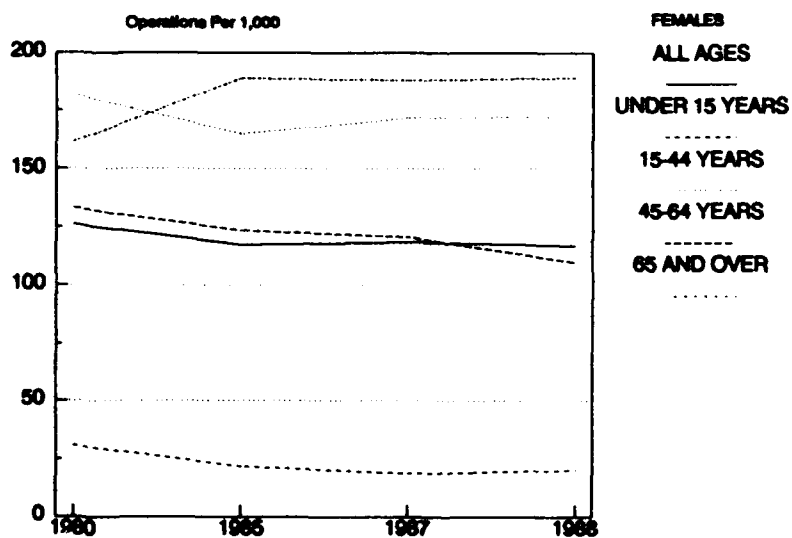


Figure 18. Females - Operations Per 1,000



IV. DISCUSSION

4.1 Defining the Market.

Geographic Dimension

When surgical clinics are viewed as a whole it appears that over 79% of all surgical visits originate within the 40 mile inpatient catchment area. Further analysis reveals however that each surgical clinical service has a different geographic boundary. General Surgery and Gynecology appear to draw more patients from the local market while Neurosurgery, Cardiovascular/Thoracic Surgery and Urology draw more patients from the regional market. This is the type of pattern that you would expect from a tertiary referral facility. Referring hospitals may not have some of the more exotic specialties therefore patients would be referred within the direct care system where appropriate.

Service areas for hospitals are not mutually exclusive. Since WPMC does not have enrollment, the movement of patients both between facilities and between the direct care and Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) indirect care system complicates the situation. It is therefore important to realize that each hospital has a varying attraction for people and physicians in various geographic areas. This is why computing the "draw" rate is important to establishing the true geographic service area. This service area is subject to changes brought about by many factors including the opening or closing of competing institutions, changes in financial incentives to use the direct care system, and perceptions of quality on the part of referring providers and patients.

In the attempt to define our market we must be careful to avoid a single market definition for the entire hospital. It is clear that Neurosurgery and Gynecology are different functions serving specific needs with different technologies. The concept of strategic business units and multiple markets (Kropf & Greenberg, 1984) are germane to military hospitals as well as civilian.

Demographic Dimension

WPMC may be fortunate in that it has a closed panel population eligible for care at its institution. It is possible, with a fair degree of accuracy, to stratify this population by location, age, sex and beneficiary category. This study has determined that the local and regional populations have a slightly different composition in terms of age and sex but a large portion of both markets consist of dependent and retiree personnel. This data, along with known incidence rates, allows projections of a very general nature regarding the health care needs of the WPMC population.

Some form of customer market segmentation is needed to answer questions of current and future response to services offered. It is much more complex than simple stratification as presented thus far. A considerable body of research has been devoted to consumer behavior. It is important to identify the healthcare decision makers within the family unit as well as the referring providers to determine what their needs are. The psychographic and behavioristic variables used to segment customer markets are beyond the scope of this study but should be addressed during the development of any marketing plans.

Projected Utilization and Market Share

The computations of projected utilization were attempts to define market demand. Market demand is the total demand for a service in a given market (Keckley, 1988). WPMC does not have a formalized way to measure this demand or the degree to which the need has been satisfied. This analysis provides a benchmark of that demand as well as an initial assessment of market penetration or market share. These measures are important for a variety of reasons. Market demand projections can identify demand for services not yet offered pointing to new opportunities. In this limited study of surgical demand, the author compared historical workload to projected demand to compute a rough estimate of market share. In addition to serving as an important benchmark for the measurement of the success of any marketing initiatives, and tracking share growth, measures of market demand can be used to identify areas where the expenditure of additional resources might assist in providing improved services to our customers.

In our local market, WPMC seems to be doing a good job of providing the expected level of surgical care to the local population. While the market share for Oral Surgery is low, it is explained by a policy of seeing dependents on a space available basis only. Projections indicate that additional Cardiothoracic, Urology, and Neurosurgery workload may be available within the local catchment area. Further analysis of historical case mix (for each of these services) by age and beneficiary category is warranted. It may be that some of the unmet demand occurs within the preferred target market of CHAMPUS eligibles.

There are several services in which the local market share exceeds 100%. There are several possible explanations for this. There may be a certain degree of moral hazard present resulting from local patients enhanced access and/or the lack of any financial barriers. It may also be that there is some degree of churning of the local population. More likely, that the demand estimates were low because of either an under estimation of the local population or some difference in the utilization rates for this particular population.

Regionally, WPMC experiences much lower rates of market penetration. Healthcare may well be more of a local issue and there are other medical treatment facilities within the region which provide surgical services. Issues of transportation, cost, and accessibility also affect this measure. Proposals for expansion of surgical services should address the degree to which competing hospitals and the in-direct care system already satisfy the expected demand.

Market Outlook

The overall market outlook after consideration of the population growth rate and changing incidence rates, suggests a fairly stable market over the next two years. Recent announcements concerning the consolidation of AF Systems Command and AF Logistics Command to form a new AF Materiel Command must be considered. Integration is to take place 1 October 1991 and is scheduled to be completed by July of 1992. The consolidation is expected to increase the total size of the local beneficiary population by 500 active duty so the net increase is likely to be

something less than 1500 personnel. Regionally, Chanute AFB Illinois is scheduled to close in FY92. This will reduce the overall regional market by approximately 10,000 active duty and dependent personnel. The longterm picture appears to be one of continued drawdown after Operation Desert Storm. While we will see a small increase in the local population, external environmental forces point toward a gradual decline in the regional population due to force drawdowns.

Surgical incidence rates have been declining slightly for males and females of all ages except for those over 65. This trend is not such that it is likely to significantly affect the demand for surgical services over the foreseeable planning horizon. Interestingly, the over 65 age group is the only group with increasing surgical incidence rates, as is the case in the civilian sector, they are becoming an increasing proportion of the overall population. Unfortunately, this is the same group which has not been an attractive market due to problems of reimbursement.

4.2 Market Analysis ... Strategic Implications.

It is important to look at market intelligence data in a strategic light. The strategic objectives with respect to the delivery of surgical services at WPMC are not well defined. WPMC mission statements generally indicate a commitment to provide comprehensive surgical services to its beneficiary population without consideration of whether or not there might be unfavorable economics and/or declining demand. There is a general

policy to perform all needed surgery even when relatively small market shares may translate into cost/benefit problems because of strong emphasis on accessibility for the population served.

As the Air Force Medical Service reimbursement mechanism moves toward a Diagnostic Related Group (DRG) based system, a reordering of surgical case mix may be in order. A balance will need to be struck in which facilities seek to maximize reimbursements by providing the procedures which are the highest weighted value and at the same time meet the needs of the beneficiary population and graduate medical education training requirements. It may well turn out that some surgery will be arranged outside of the normal direct care system in order to maximize facility and personnel resources. Specific objectives which address this desired case mix have not been formulated. This study should help to define the type and level of surgery the WPMC beneficiary population is expected to require.

V. CONCLUSIONS AND RECOMMENDATIONS

Market share analysis seems to indicate that there is limited potential for expansion within the local market area within selected specialties. Greater opportunity is evident in the regional market. There are many factors which affect market share, some of which are under management's control. Referral provider relations, accessibility, cost, transportation, personnel resources, ancillary support and a myriad of other considerations must be evaluated prior to expansion.

Management must develop specific strategic objectives with respect to expansion of surgical services. These objectives must address changing reimbursement mechanisms, beneficiary and training needs and must be integrated with the financial plan and the realities of limited resources. Market intelligence must be integrated with strategic planning. A formalized marketing information system should be developed to support continuous analysis of the external environment.

Consideration should be given to developing strategic business units within the Department of Surgery. These units would detail specific markets, perform cost benefit/analysis, develop pro-forma financial statements, projected growth rates and proposed marketing initiatives.

VI. REFERENCES

Keckley, Paul H. (1988) Market Research Handbook for Professionals, America: American Hospital Publishing Inc.

Kropf, Roger & Greenberg, James A. (1984) Strategic Analysis for Hospital Management, Rockville, Maryland: Aspen

Malhotra, Naresh K. (1989) Decision Support Systems for Health Care Marketing Managers, Journal of Health Care Marketing Vol 9 (2)

Nickels, William G. Marketing Principles: A Broadened Concept of Marketing (1978) Englewood Cliffs, New Jersey: Prentice Hall Inc.

Pegels, C. Carl & Rogers, Kenneth A. (1988) Strategic Management of Hospitals and Health Care Facilities, Rockville, Maryland: Aspen

Saper, Kari E. & Mazzoni, Robert (1987), Marketing: Take Two/A Tale of 3 Cities Marketing Battles, Modern Healthcare Vol 17 (9)